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ABSTRACT

To investigate the reasons that tutoring is effective, a study was conducted of what happened during a series of tutoring sessions, and the effects of these events on students' behaviors and tutoring outcomes were analyzed. A total of 48 tutoring sessions, which included 6 tutors and approximately 25 college student-athletes, were tape-recorded by the tutors. The sessions were analyzed in terms of time use (percentage of talk time for tutor and student on and off task, and silence) and questioning (frequency count for tutor and student, categorized as preparation, process or review). The results revealed a consistent pattern of tutor dominance in that: tutors talked about three times as much as students, asked about six times as many questions, devoted most of their time presenting information, asked few questions, and provided little time for students to ask or respond to questions. Probable reasons for the students' passivity are discussed, including the safety offered by silence and passivity and the reinforcement that may be provided by the tutors. Contains 13 references. (KM)

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What Happens During Tutoring: An Investigation of Time Use, Questioning, and Learning Processes

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Tutoring has a long history as an instructional strategy at all levels of education. The one-to-one relationship associated with tutoring is often considered to be the best possible teaching learning situation. In fact, considerable evidence does support tutoring as an effective instructional strategy. In a meta-analysis of outcomes from tutoring, Cohen, Kulik and Kulik (1982) found moderate positive effect sizes for elementary and secondary programs. In addition to these data, the prevalence of tutoring, particularly for resolving learning problems, attests to the confidence many have in its effectiveness.

Though there is evidence that tutoring is an effective technique to increase achievement, there is little information about why tutoring is effective. In particular, few data are available through which a description of effective tutoring behaviors can be generated. While tutor training has been a main focus of considerable attention (Reeve & Steely, 1987), the selection of behaviors tutors are trained to use is based on intuition or on effective teaching research (e.g., Brophy and Good, 1986) rather than empirical evidence that specific tutoring behaviors are more effective. In fact, studies by Coyne (1978) and Reed (1974) indicate that regardless how much or how little training was done, tutoring produced satisfied tutees and beneficial outcomes.

In this study, we describe what happened during a series of tutoring sessions and present an analysis of the effects of these events on students' behaviors and tutoring outcomes. Several issues appear particularly important. First, the interaction between the tutor and the environment appears likely to have an impact on tutoring effectiveness. Second, the

effects of tutoring can be immediate but transitory, enduring and both. Third, tutoring has the potential to create dependent learners who are unable to achieve as self-directed students (Schmelzer, Brozo & Stahl, 1984, Walter & Smith, 1986). Fourth, tutoring could substitute for the cognitive processes needed to comprehend. As a consequence, tutored learners may never acquire the skills and strategies needed to learn effectively using their own abilities.

One population that relies heavily upon tutorial assistance is college athletic departments as a way to promote academic success among student-athletes. In 1983, 74% of 114 NCAA Division I athletic departments surveyed included tutoring as a component of their academic assistance programs (Gurney, Robinson & Fygetakis, 1983). Student-athletes face a special challenge in their attempt to maintain a balance between their dual role as student and athlete. The attention and emphasis of others is often directed toward their role as athletes. Athletics and its importance on campus is emphasized in several ways such as the special housing and dining facilities which are often separated from the general student population. In addition, daily schedules often revolve around practices, strategy meetings, weightlifting and study hall. The amount of time student-athletes must devote to being athletes creates problems for finding the time to define and assume their role as students. This situation often forces student-athletes into an academic survival attitude. As a consequence, their primary academic goal is often to meet the minimum grade point average to maintain athletic eligibility. This attitude is further reinforced by the public attention they receive for success on the playing field rather than their classroom performances.

Given these conditions, it is reasonable to assume that what happens during a tutorial session could influence not only what student-athletes learn but how they learn. Cognitive science has generated several principles which describe learning. These are:

1. Learning is an active process which involves cognitive actions at several levels.

2. Comprehension is constructed by individual learners using their personal prior knowledge to understand new information.

3. Learning requires considerable information manipulation, elaboration, rehearsal and evaluation.

4. Mastery of difficult and complex concepts requires more time and effort than simple concepts.

These principles suggest that the tutorial should be more than a tutor relaying information to a passive learner. Creating an effective tutorial situation requires that tutor and tutee possess behaviors, knowledge and attitudes which will enhance the development of comprehension and understanding by using effective learning skills and strategies. The data presented in this report provide a "snap-shot" of the interactions between tutors and tutees during a series of tutoring sessions on two dimensions: the use of time and the type and source of questions.

METHOD

Subjects and Setting

The students were male student-athletes assigned to an athletic study hall because of their low grade point averages (below 2.0). Each student-athlete was paired with an appropriate tutor for each course in which he was enrolled. The tutors and student-athletes were expected to meet a minimum of twice each week. The athletic study hall operated four nights a week for two hours. During that time, the student-athletes were required to meet with their respective tutors or study independently.

The six tutors selected for this study were employed by the athletic department and tutored on a regular basis. Tutors were hired for their knowledge of the subject area, ability to communicate this knowledge, and ability to work well with others. The tutors participated in a general tutoring orientation program to identify the purpose and operating procedures of the study hall, e.g., time, place, administrative matters, and to receive names of students assigned to them.

Procedure

Once they agreed to participate, tutors were instructed how to use a cassette recorder and asked to record each of their tutoring sessions. The sessions were to be 30 minutes in length. The student-athletes were told that some of their tutoring sessions would be recorded, and that anonymity would be

respected. A total of 48 tutoring sessions which included 6 tutors and approximately 25 student-athletes were recorded (Table 1).

Table 1

Recorded tutoring sessions per tutor:

Tutor	# Sessions
TA	6
TB	8
TC	12
TD	8
TE	6
TF	8

Dependent Variables

Time Use:

The percentage of talk time for tutor and student (on/off task) and silence was analyzed through a time sample frequency count using ten-second intervals. At the end of each ten-second interval the observer recorded 1) tutor, student or silence and 2) if the talk was on task.

Questions:

A frequency count of the number of questions asked was made for the tutor and student. In addition, questions were categorized into types as follows:

a. PREPARATION- Any question that directed the students' attention to the task, retrieved prior information on the subject matter, or established goals (e.g., "What do you need to be able to do to succeed at this task?").

b. PROCESS- Any question that assisted students in encoding the given information through elaboration, generation of relationships, or concept formation (e.g., "What is the author telling you in this paragraph and how does it relate to the previous information?").

c. REVIEW- Any question that monitored the students' comprehension of acquired information or the process of acquiring that information (e.g., "What could you have done differently to improve your last test score?").

Results

The results indicate that tutors do most of the talking during tutoring sessions. The average amount of time spent talking for a tutor was 56%. However, average tutor talk time ranged from 43.5% to 83% (Table 2).

Table 2

Talk time averages and range per tutor:

	Average	High	Low
TA	43.5%	65%	25%
TB	53%	70%	32%
TC	52%	72%	28%
TD	83%	90%	74%
TE	44%	56%	36%
TF	63%	74%	40%
Group:	56%	90%	25%

The average amount of student talk time was 19% and ranged from 10% to 25% (Table 3).

Table 3

Talk time averages and range per student per tutor:

	Average	High	Low
TA	21%	40%	8%
TB	25%	50%	16%
TC	21%	35%	8%
TD	10%	15%	5%
TE	21%	32%	0%
TF	18%	42%	7%

The average amount of silence was 22% and ranged from 7% to 35% (Table 4).

Table 4

Averages and range of silence per tutor per session:

	Average	High	Low
TA	25.5%	36%	16%
TB	21%	33%	12%
TC	27%	54%	10%
TD	7%	12%	2%
TE	35%	64%	13%
TF	19%	42%	7%
Group:	19%	64%	2%

Questions:

The number of questions asked by tutors averaged 9 questions per session and ranged from 4 to 16.5 per session (Table 5).

Table 5

Averages and range of the number of questions asked per tutor:

	Average	High	Low
TA	5	10	0
TB	14	26	4
TC	4	12	0

Table 5--continued:

TD	16	28	4
TE	6	14	4
TF	9	14	4
Group:	9	28	0

The average number of questions asked per session by the students was 1.5 and ranged from 1 to 3 (Table 6).

Table 6

Averages and range of questions asked by student-athletes per tutor:

	Average	High	Low
TA	3	9	0
TB	1.5	3	0
TC	1	3	0
TD	2	5	0
TE	1.5	6	0
TF	1	4	0
Group:	1.5	9	0

The types of questions that were asked by the tutors per session averaged 2.5 preparation questions, 5.5 process questions, and 1 review question per session (Table 7).

Table 7

Average type of questions asked per tutor:

	Preparation	Process	Review
TA	1	3.5	.5
TB	4.5	8	2
TC	1.6	2	.75
TD	2	12.5	1
TE	3	2.5	.5
TF	3	5	.5
Group:	2.5	5.5	1

Discussion

The results indicate that tutors talked about three times as much as students and asked about six times as many questions. Silence occurred about 20% of the time. The majority of tutors' time was devoted to presenting information; they asked few questions and provided little time for students to ask or respond to questions. The picture appears to be one of relatively passive learners being "filled" with knowledge by tutors. In addition, the use of time, frequency and type of questions were relatively consistent across all tutors. This appears to support the notion that a relatively consistent concept of tutoring exists: the tutor is a dispenser and the student is a sponge.

One explanation for this consistent pattern of tutor dominance could be that the student-athletes have assumed a submissive role in the tutorial allowing

the tutor to control the sessions. This role is "safe" for the students, protecting them from the embarrassment of not knowing the answer and from being wrong. Some anecdotal evidence also indicates that students who are silent have not studied the material and, thus, have little to say. Because they are passive, students are not under any obligation or pressure to study or prepare for the tutoring sessions. They can assume that the answers will be provided by the tutor.

The tutor may reinforce this passivity by preferring to dominate the situation. If the tutors are not properly trained in identifying and meeting the educational needs of an individual student, they may feel much more comfortable telling the student all that they know rather than identifying and teaching what the student needs to know. In turn, the student may reinforce this dominant behavior of the tutor by remaining passive.

One way that tutors dominate tutoring sessions is by the types of questions they ask. The majority of their questions required the students to repeat verbatim information without having to synthesize or think elaboratively to construct an answer. When asked "who", "what", and "when" questions the typical student response consisted of one or two words. This could explain the lack of student involvement despite the relatively high number of questions asked by some tutors.

Student passivity is also evident in the number of questions they ask during a session (an average of 1.5). The most questions asked by a student during a session was 8, with the majority of these questions seeking clarification of

points previously made by the tutor. On the other hand, if students asked more relevant questions which were focused upon processing the information, they could become more active participants in the tutoring sessions. One possibility to explain the low number of student questions is that the students did not know appropriate questions to ask. The evidence indicating little if any pre-tutoring study supports this contention that students did not know enough to ask good questions. Perhaps it is the tutees, in addition to the tutors, that would benefit from training designed to increase the number and types of questions they ask to enhance their participation.

Passivity is common among students with academic problems. Students who do not become actively involved with the presented information and who do not apply strategies to process the information will not be as successful as those who do (Weinstein & Mayer, 1986; Wittrock, 1986; Sherman, 1985). This does not infer that poor students are incapable of learning effective strategies and applying them. In fact, research has shown that learning strategies can indeed be taught to "poor" students (Dansereau, 1985; Weinstein & Mayer, 1986; Weinstein & Underwood, 1985). However, tutoring inadvertantly could frustrate student-athletes as long as tutors serve as "thinking" surrogates for the students.

The tutorial presents an opportunity for the tutor to meet the needs of students. It is evident from this investigation that these student-athletes need to become more directly involved in the learning that occurs in the tutoring sessions. By increasing the tutors' awareness of the characteristics of effective learning, and providing them with an instructional procedure

designed to enhance the learning process, the effectiveness of the one-to-one tutorial can be enhanced.

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